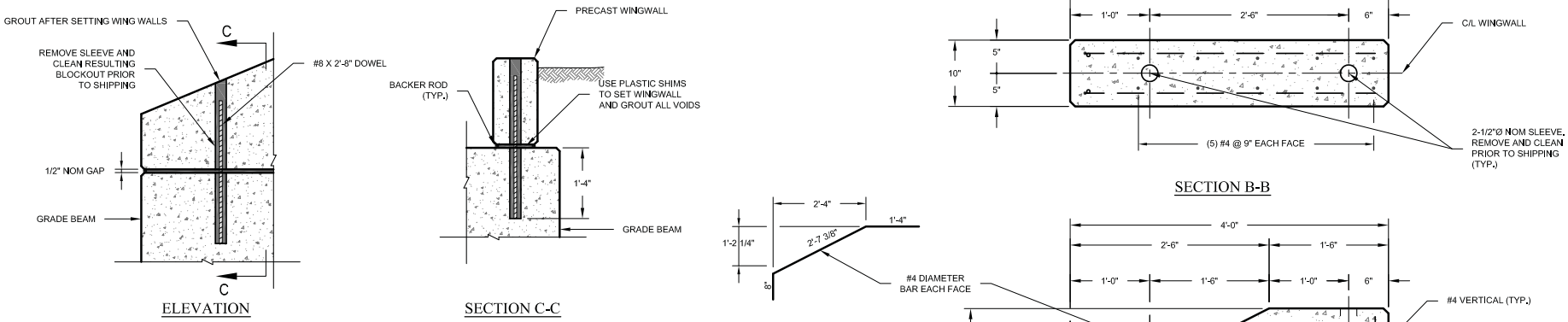
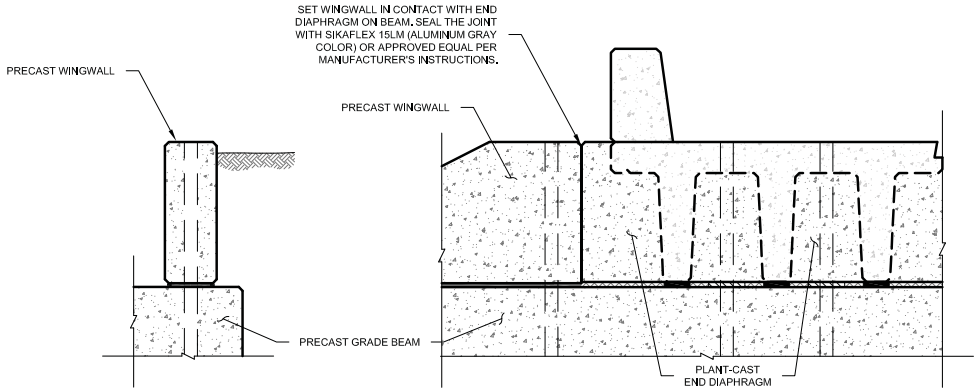


WINGWALL CONNECTION DETAILS

SCALE: 1/2" = 1'-0"

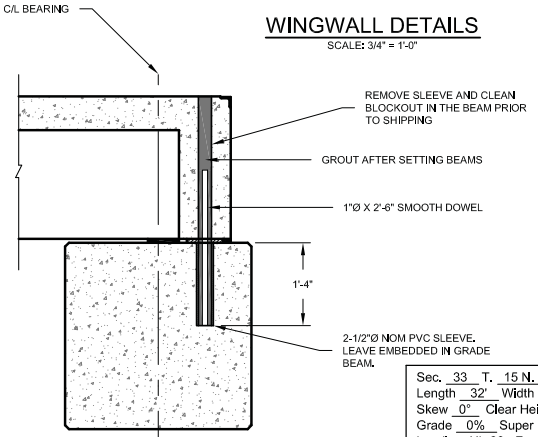
WINGWALL DETAILS

SCALE: 3/4" = 1'-0"



WINGWALL-TO-END DIAPHRAGM CONNECTION DETAILS

SCALE: 1/2" = 1'-0"



BEAM CONNECTION DETAIL

SCALE: 1/2" = 1'-0"

Sec. 33 T. 15 N. R. 9 W.
Length 32' Width 14.0'
Skew 0° Clear Height 5.65'
Grade 0% Super NA
Loading HL-93 Forest HELENA

DRAWING DATE: 8/1/2013
△ Revised_____Date_____
△ Revised_____Date_____
△ Revised_____Date_____
△ Revised_____Date_____

THEODORE CREEK

NFSR 4106, M.P. 4.5

ABUTMENT & BACKWALL DETAILS

Designed By:TDM | Design Checked:---
Drawn By:CRH | Drawing Checked:TDM

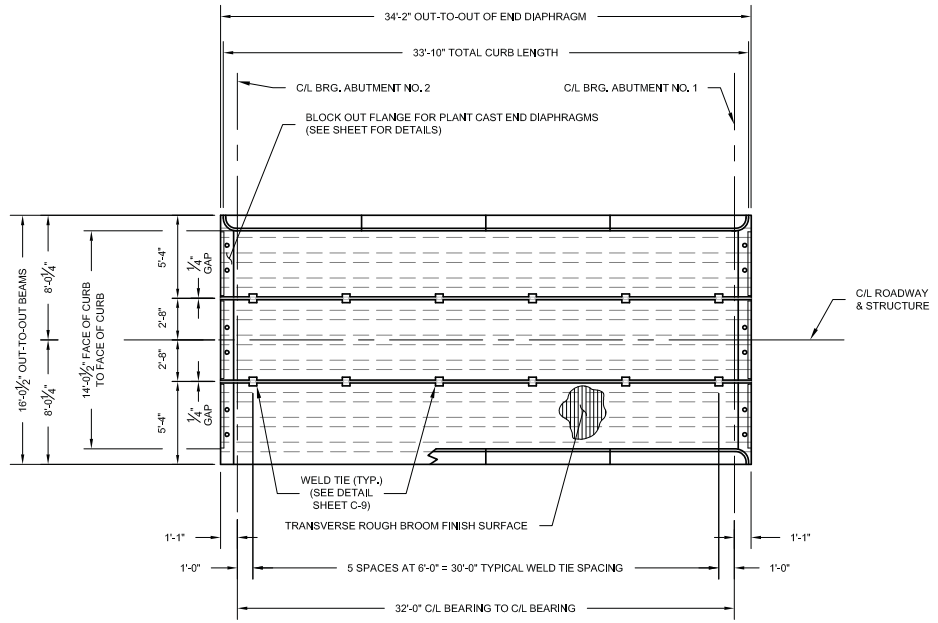
Sheet: 7 of 12

BIG BLACKFOOT — Big Blackfoot Chapter of Montana Trout Unlimited

MORRISON MAIERLE, INC. — Engineers Surveyors Planners — 2911 Palmer St, Missoula, MT 59808 — Phone: (406) 543-5880 Fax: (406) 543-4001

FOREST SERVICE — U.S. DEPARTMENT OF AGRICULTURE — REGION ONE

M:\46350002\ACAD\SHEETS\THEODORE CREEK\7 ABUTMENT & BACKWALL DETAILS.DWG, PLOTTED BY:TROY MONROE ON Feb/12/2014



SUPERSTRUCTURE PLAN

SCALE: 1/8" = 1'-0"

PRESTRESSED BEAM NOTES:

PRESTRESSED CONCRETE BEAM DESIGN: PRETENSIONING IS THE ONLY ACCEPTABLE METHOD OF PRESTRESSING FOR THIS PROJECT.

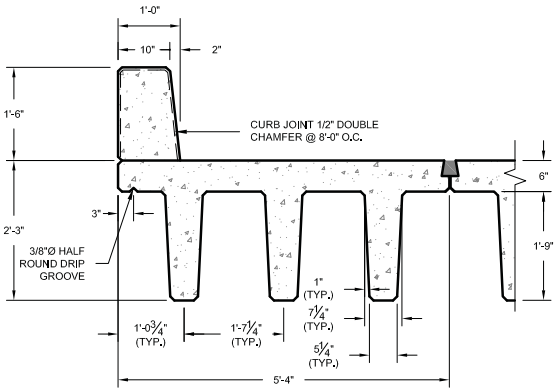
THE PRESTRESS FABRICATOR SHALL PROVIDE THE FINAL DESIGN FOR ALL PRESTRESSED REINFORCEMENT AND NON-PRESTRESSED REINFORCEMENT IN THE SECTION SHOWN ON THIS SHEET. THE DESIGN SHALL VERIFY THAT ALLOWABLE STRESS AND ULTIMATE STRENGTH REQUIREMENTS ARE MET AT ALL STAGES OF CONSTRUCTION. THE FINAL DESIGN SHALL BE PREPARED BY A LICENSED PROFESSIONAL ENGINEER WHOSE SIGNED SEAL SHALL BE ON THE DESIGN DOCUMENTS. THIS DESIGN SHALL BE SUBMITTED WITH THE DETAILS OF METHOD, MATERIALS AND EQUIPMENT PROPOSED FOR USE IN THE PRESTRESSING OPERATION AS NOTED BELOW AND IN THE STANDARD SPECIFICATIONS 553.03. SEE GENERAL NOTES ON SHEET C-2 FOR ADDITIONAL DESIGN AND MATERIAL SPECIFICATIONS.

AN ALTERNATE SECTION OF PRECAST, PRESTRESSED CONCRETE ONLY MAY BE PROPOSED. THE PROPOSED ALTERNATE SECTION MAY DEVIATE 3" MAXIMUM IN HEIGHT AND OVERALL BRIDGE WIDTH MUST PROVIDE A 14'-0" MIN. CLEAR OPENING BETWEEN GUARDRAIL. THE FINISH GRADE ELEVATION SHALL BE MAINTAINED WITH ADJUSTMENT MADE IN THE BOTTOM OF GRADE BEAM ELEVATION. THE ALTERNATE SECTION MUST PROVIDE A MINIMUM OF 2'-6" FREEBOARD ABOVE THE 100 YEAR FLOOD ELEVATION SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR REVISIONS REQUIRED IN THE END DIAPHRAGM REINFORCEMENT, CONNECTION TO SUBSTRUCTURE, ETC. THESE REVISIONS SHALL BE SUBMITTED WITH THE BEAM DESIGN AS NOTED BELOW.

PRIOR TO BIDDING VERIFY DESIGN OF THREE LINES OF TRI-DECK PRESTRESSED CONCRETE CONFIGURATION FOR CAPACITY AND SUPPLIER'S BED CAPABILITIES AT CONTRACTOR'S EXPENSE.

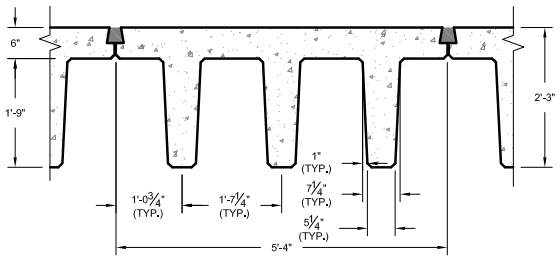
DESIGNS SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 5TH EDITION - 2010 WITH CURRENT INTERIMS.
DESIGN NOTES AS FOLLOWS:
HL-93 LIVE LOAD
TRUCK IMPACT = 33%
LOAD FRACTION AS PER AASHTO
SUPERIMPOSED DEAD LOAD IS 35 PSF FOR A FUTURE WEARING SURFACE. SUPERIMPOSED DEAD LOAD ASSUMED TO BE EQUALLY DISTRIBUTED TO THE BEAMS IN THE SECTION.

ENSURE THE MAXIMUM TENSION STRESS IN THE PRECOMPRESSED TENSILE ZONE AFTER ALL LOSSES FOR ALL SERVICE CASES IS 0.190 SQRT (f'c) - MODERATE CORROSIVE CONDITIONS. MAXIMUM TEMPORARY TENSILE STRESS (AT RELEASE) IS 0.20 KSI.



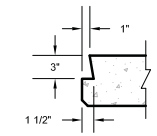
TYPICAL EXTERIOR BEAM

SCALE: 1/2" = 1'-0"



TYPICAL INTERIOR BEAM

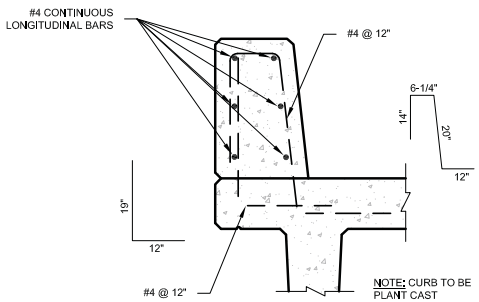
SCALE: 1/2" = 1'-0"



NOTE: BEAM FABRICATOR MAY SUBMIT ALTERNATE GROUT KEY DETAIL FOR APPROVAL.

GROUT KEY DETAIL

SCALE: 3/4" = 1'-0"



CURB REINFORCING DETAIL

SCALE: 3/4" = 1'-0"

Sec. 33 T. 15 N. R. 9 W.	DRAWING DATE: 8/1/2013
Length 32' Width 14.0'	△ Revised Date
Skew 0° Clear Height 5.65'	△ Revised Date
Grade 0% Super NA	△ Revised Date
Loading HL-93 Forest HELENA	△ Revised Date

THEODORE CREEK

NFSR 4106, M.P. 4.5

SUPERSTRUCTURE PLAN & DETAILS

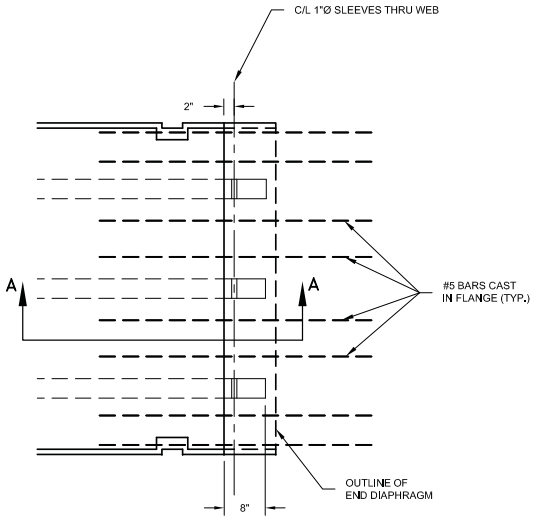
Designed By:TDM	Design Checked:---	Sheet: 8 of 12
Drawn By:CRH	Drawing Checked:TDM	

BG Big Blackfoot Chapter of Montana Trout Unlimited

MORRISON MAIERLE, INC. Engineers Surveyors Planners 2911 Palmer St, Missoula, MT 59808 Phone: (406) 543-5500 Fax: (406) 543-4001

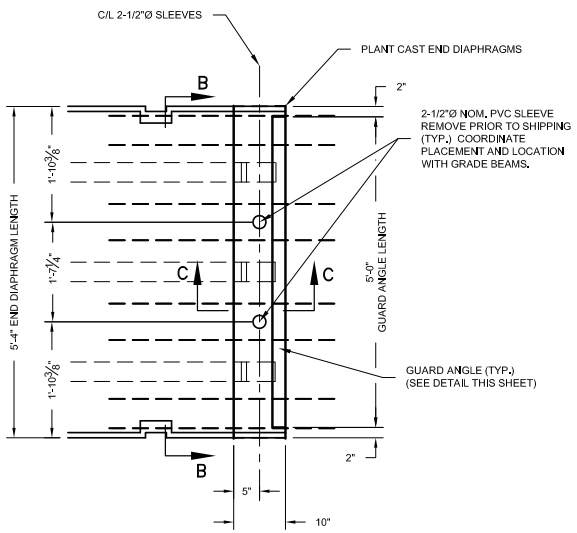
FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE REGION ONE

M:\48350002\ACAD\SHEETS\THEODORE CREEK\8 SUPERSTRUCTURE PLAN & DETAILS.DWG, PLOTTED BY:TROY MONROE ON Feb/12/2014

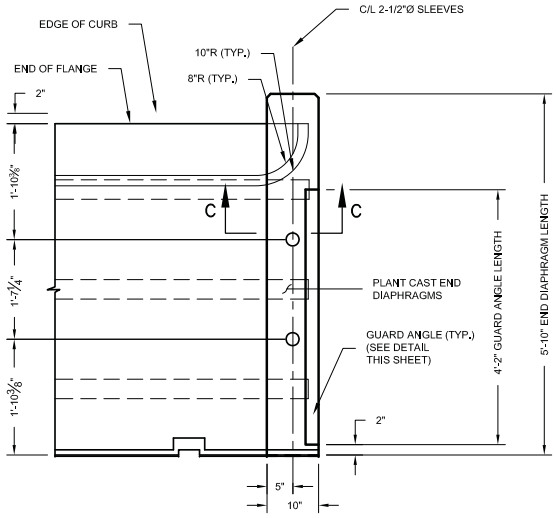


BEAM BLOCKOUT DETAILS

SCALE: 1/2" = 1'-0"



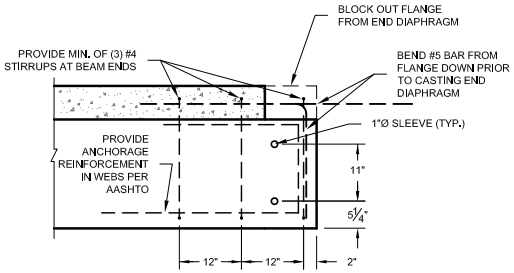
INTERIOR



EXTERIOR

END DIAPHRAGM DETAILS

SCALE: 1/2" = 1'-0"



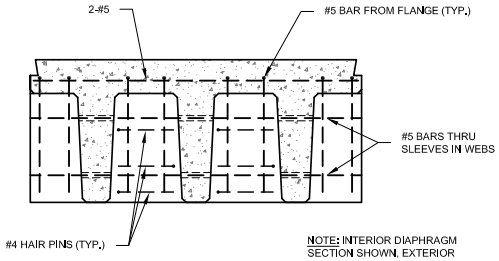
SECTION A-A

SCALE: 1/2" = 1'-0"

NOTE: INTERIOR DIAPHRAGM SECTION SHOWN, EXTERIOR DIAPHRAGM SIMILAR.

NOTE:
ALL BEAM WIDTH DIMENSIONS SHOWN ARE NOMINAL. FABRICATOR SHALL MAKE ADJUSTMENTS NECESSARY TO PROVIDE NECESSARY GAP BETWEEN BEAMS AND MAINTAIN OUT-TO-OUT OF BEAMS WIDTH.

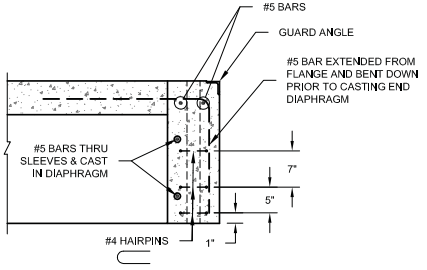
NOTE:
GUARD ANGLES, ELASTOMERIC BEARING PADS, AND BEAM CONNECTIONS SHALL BE CONSIDERED SUBSIDIARY TO THE CONTRACT PAY ITEM 55301 PRECAST, PRESTRESSED CONCRETE STRUCTURAL MEMBERS, TRI-DECK BEAMS.



SECTION B-B

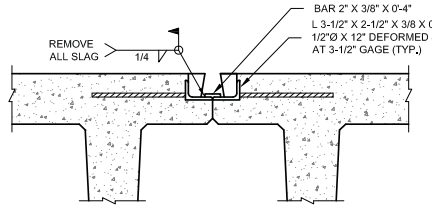
SCALE: 1/2" = 1'-0"

NOTE: INTERIOR DIAPHRAGM SECTION SHOWN, EXTERIOR DIAPHRAGM SIMILAR.



SECTION C-C

SCALE: 1/2" = 1'-0"

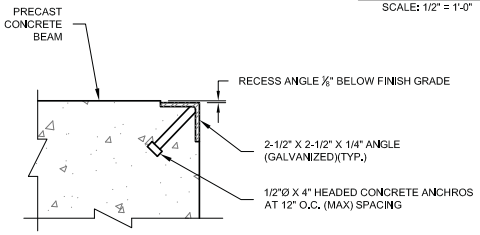


NOTE FABRICATOR MAY SUBMIT ALTERNATE DETAIL FOR APPROVAL

WELD TIE DETAIL

SCALE: 1/2" = 1'-0"

NOTE:
GROUT ALL KEYWAYS AFTER WELDING.



GUARD ANGLE DETAIL

SCALE: 1-1/2" = 1'-0"

Big Blackfoot Chapter of Montana Trout Unlimited

BIG BLACKFOOT

MORRISON MAIERLE, INC.
An Employee-Owned Company
2011 Palmer St, Missoula, MT 59802
Phone: (406) 543-5880 Fax: (406) 543-4001

FOREST SERVICE
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REGION ONE

Sec. 33 T. 15 N. R. 9 W.	DRAWING DATE: 8/1/2013
Length 32' Width 14.0'	△ Revised Date
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Grade 0% Super NA	△ Revised Date
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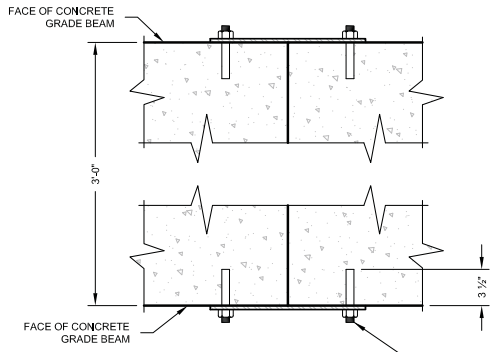
THEODORE CREEK

NFSR 4106, M.P. 4.5

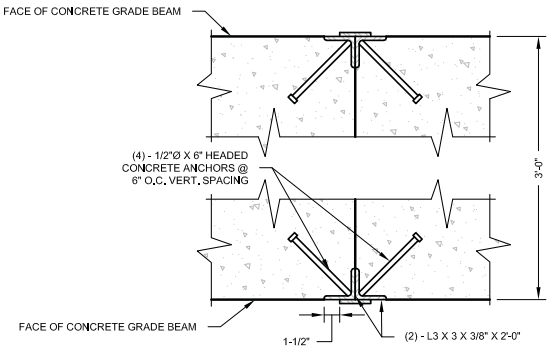
SUPERSTRUCTURE DETAILS

Designed By:TDM	Design Checked:---	Sheet: **9** of **12**
Drawn By:CRH	Drawing Checked:TDM	

M:\48350002\ACAD\SHEETS\THEODORE CREEK\9 SUPERSTRUCTURE DETAILS.DWG, PLOTTED BY:TROY MONROE ON Feb/12/2014



PLAN SECTION



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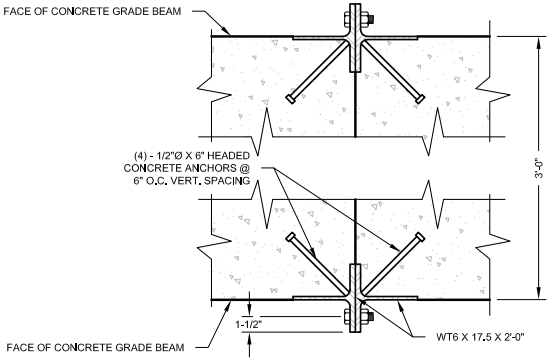
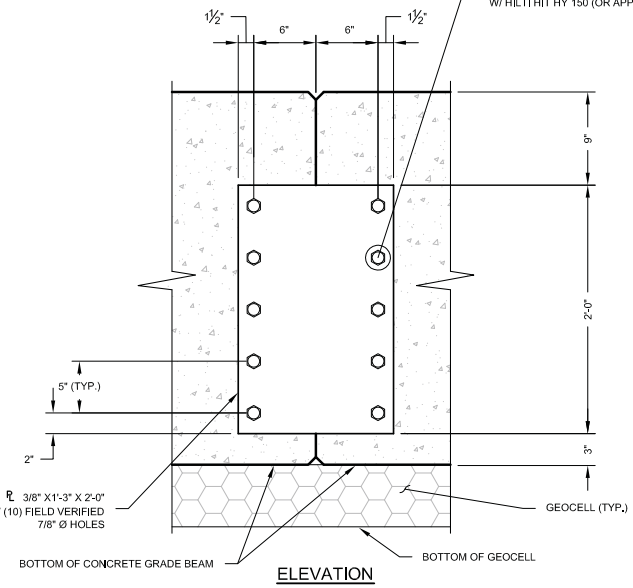
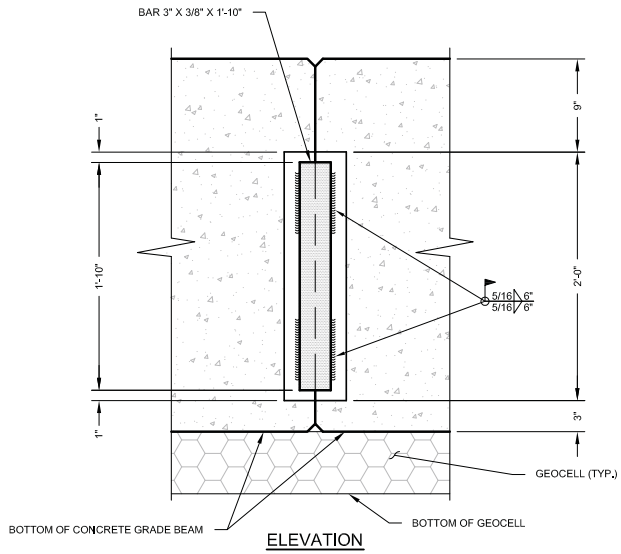


PLAN SECTION



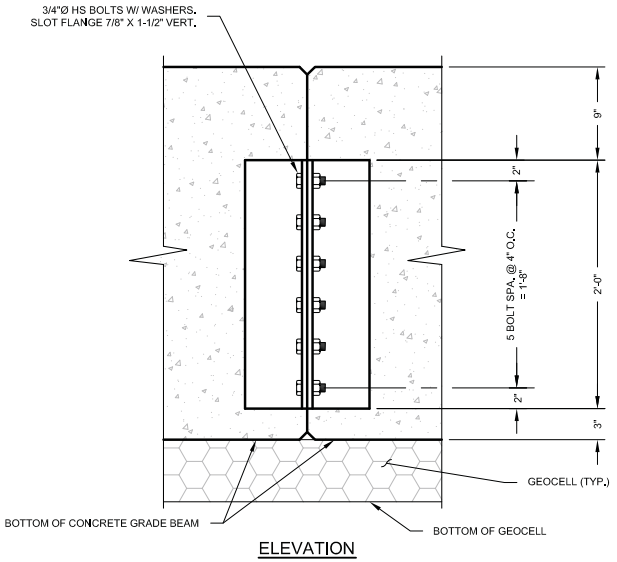
ELEVATION

POST-INSTALLED ANCHORS ALTERNATE



ELEVATION

FIELD WELD ALTERNATE



ELEVATION

FIELD BOLT ALTERNATE

OPTIONAL FIELD SPLICE DETAILS

SCALE: 1" = 1'-0"

NOTES:

1. PROVIDE SPLICE ON EACH SIDE OF PRECAST GRADE BEAM.
2. PROVIDE ADDITIONAL #5 HOOP WITH CLEAR COVER AT SPLICE FACE OF THE CONCRETE GRADE BEAM. SEE ABUTMENT SHEET FOR BAR DETAIL.
3. DO NOT LOCATE SPLICE WITHIN 6 INCHES OF BEARING PAD OR EDGE OF BEAM.

Sec. 33 T. 15 N. R. 9 W.
Length 32' Width 14.0'
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DRAWING DATE: 8/1/2013
△ Revised Date
△ Revised Date
△ Revised Date
△ Revised Date

THEODORE CREEK

NFSR 4106, M.P. 4.5

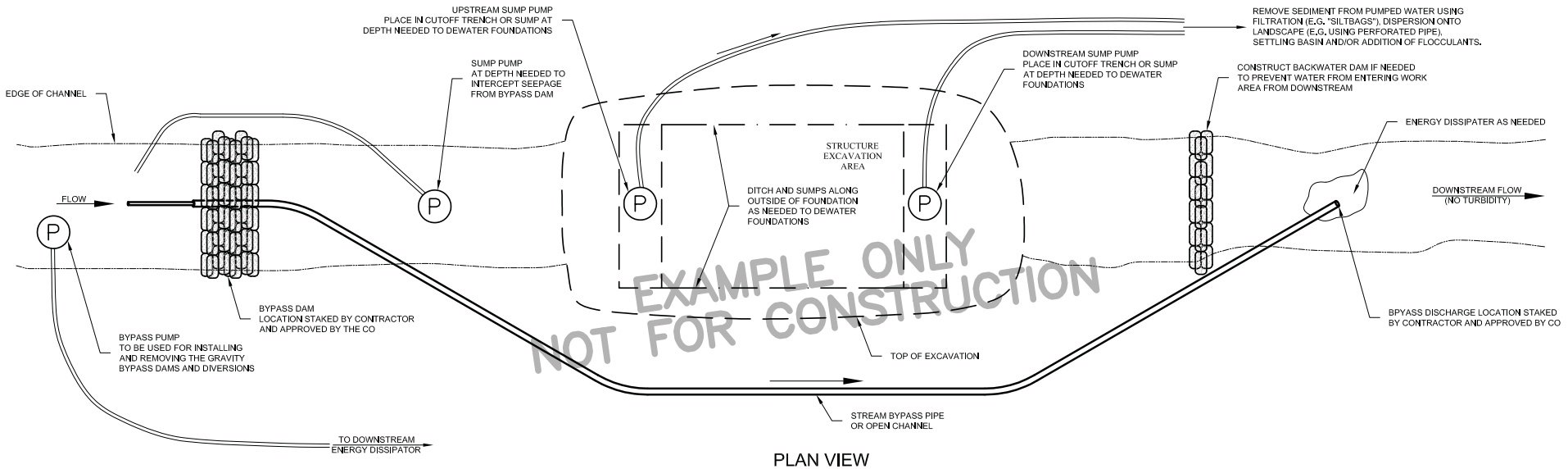
FIELD SPLICE DETAILS

Designed By:TDM	Design Checked:---
Drawn By:CRH	Drawing Checked:TDM

Sheet: **10** of **12**

REGION ONE

M:\48350002\ACAD\SHEETS\THEODORE CREEK\10 FIELD SPLICE DETAILS.DWG, PLOTTED BY:TROY MONROE ON Feb/12/2014



PLAN VIEW
NOT TO SCALE

NOTES:

1. PROTECT AGAINST SOIL EROSION AND SEDIMENTATION DURING CONSTRUCTION IN ACCORDANCE WITH FP-03, SECTION 157 AND THE PROJECT PERMITS. CONTRACTOR SHALL PREPARE AND SUBMIT A SOIL EROSION AND SEDIMENT CONTROL PLAN TO CO FOR APPROVAL. PLAN SHALL INCLUDE DRAWINGS ND A WRITTEN OUTLINE ILLUSTRATING AND DESCRIBING PROPOSED LAYOUT, METHODS, AND EQUIPMENT.
2. DEWATER THE EXCAVATION IN ACCORDANCE WITH FP-03 SECTIONS 208, 209 AND 157 AND THE REQUIREMENTS ON THIS SHEET.
3. CONTRACTOR SHOULD ANTICIPATE WATER INFILTRATING THE EXCAVATIONS.
4. DEWATERING IS THE RESPONSIBILITY OF THE CONTRACTOR AND CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE CO FOR APPROVAL WITH THE EXCAVATION PLAN. THIS SHEET ILLUSTRATES GENERIC DEWATERING REQUIREMENTS AND POSSIBLE METHODS AND EQUIPMENT AND IS NOT CONSIDERED ADEQUATE FOR THIS PROJECT. CONTRACTOR SHALL DEVELOP PLANS AND SHALL INCLUDE DRAWINGS AND A WRITTEN OUTLINE ILLUSTRATING AND DESCRIBING PROPOSED LAYOUT, METHODS, EQUIPMENT AND ANTICIPATED STREAM FLOW VOLUMES. APPROVAL OF THE DEWATERING PLAN BY THE CO DOES NOT RELIEVE THE CONTRACTOR FROM COMPLETING THE WORK AS SPECIFIED. IF CONTRACTOR'S IDENTIFIED DEWATERING METHODS ARE NOT PRODUCING DESIRED RESULTS, CONTRACTOR SHALL RE-EVALUATE AND SUBMIT ANOTHER PLAN TO CO FOR APPROVAL AND IS INCIDENTAL TO WORK.
5. CONTRACTOR IS RESPONSIBLE FOR SIZING ALL PUMPS, DAMS, BYPASS PIPES, OPEN CHANNELS, ETC.
6. SUBGRADE EXCAVATION, GEOCELL INSTALLATION, GRADEBEAM PLACEMENT, RIPRAP PLACEMENT, BEDDING PLACEMENT AND BACKFILL ARE TO BE COMPLETED PER THE CONTRACT SPECIFICATIONS AND STANDING OR RUNNING WATER IN THE WORK AREA DOES NOT RELIEVE THE CONTRACTOR FROM MEETING THE SPECIFICATIONS.
7. SOIL EROSION AND SEDIMENT CONTROL MEASURES SPECIFIC TO THE DEWATERING PLAN SHALL BE INCLUDED AND SHALL BE IN CONFORMANCE WITH PROJECT PERMITS.

MORRISON MAIERLE, INC.
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REGION ONE

THEODORE CREEK

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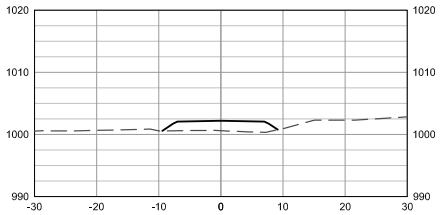
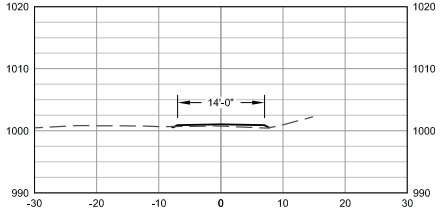
DEWATERING REQUIREMENTS

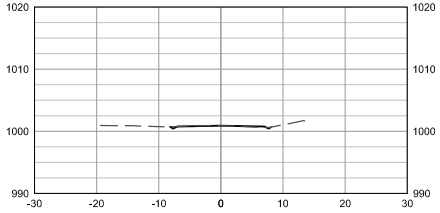
Designed By:TDM	Design Checked:---	Sheet: 11 of 12
Drawn By:CRH	Drawing Checked:TDM	



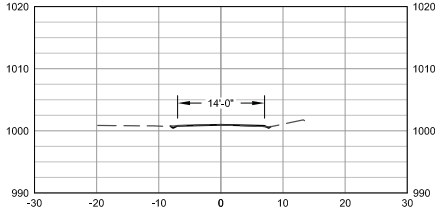
STA. 9+25



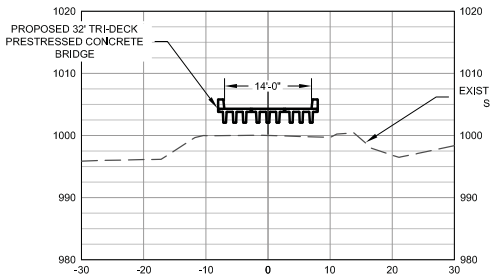
STA. 9+00



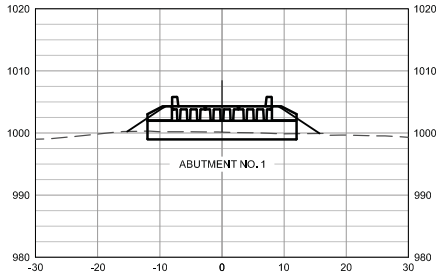
STA. 8+75



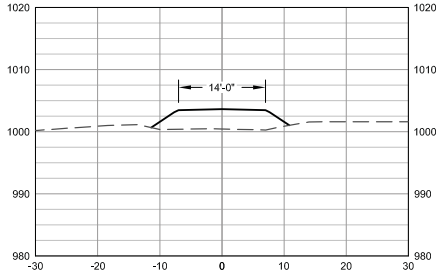
STA. 8+70



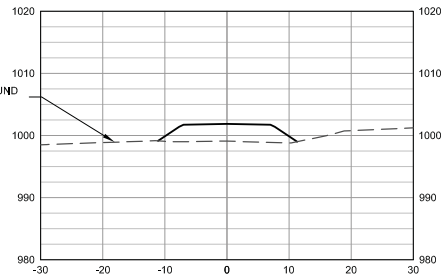
STA. 10+00



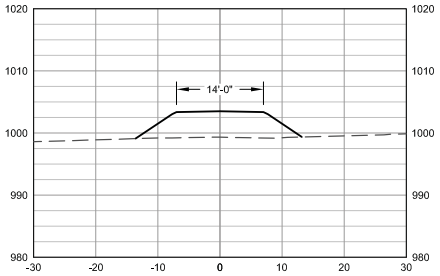
STA. 9+84.6



STA. 9+50



STA. 10+75



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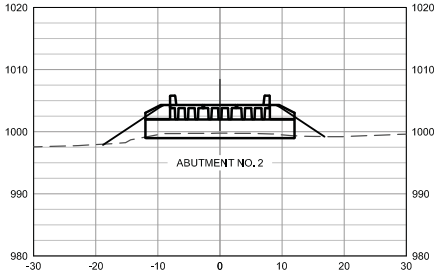

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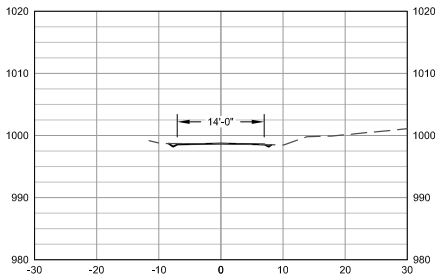
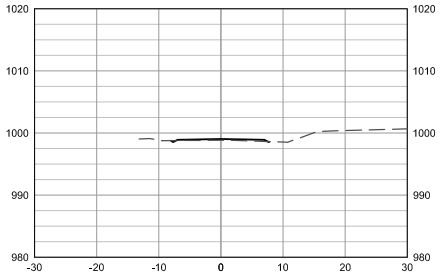
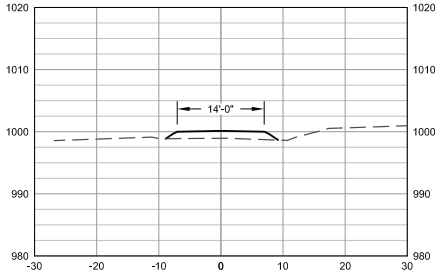


STA. 11+50



STA. 11+25



STA. 11+00

BIG BLACKFOOT

MORRISON MAIERLE, INC.

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

REGION ONE

THEODORE CREEK

NFSR 4106, M.P. 4.5

CROSS-SECTIONS

Designed By:TDM	Design Checked:----
Drawn By:CRH	Drawing Checked:TDM

Sheet: **12** of **12**

M:\48350002\ACAD\SHEETS\THEODORE CREEK\12 CROSS-SECTIONS.DWG, PLOTTED BY:TROY MONROE ON Feb/12/2014